First report of grapevine Cabernet Sauvignon reovirus from grapevines in China

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Grapevine Cabernet Sauvignon reovirus (GCSV) was first described in California by high-throughput sequencing analysis in 2015 (Al Rwahnih et al. 2015). Subsequently, a GCSV isolate was discovered in Brazil (Basso et al. 2017). In June 2018, a ‘Cabernet Sauvignon’ grapevine collected from Liaoning province in China exhibiting chlorotic mottling was analyzed by small RNA sequencing with Illumina HiSeq™ 2000 platform. The raw reads were processed by removing the sequences smaller than 16 nucleotides or longer than 28 nucleotides, low-quality tags, poly A or N tags, resulting in 13,001,312 clean data. The clean data were de novo assembled into longer contigs and identified through BLAST analysis. One hundred and thirty-six contigs showed 86.11–98.02% nt identity with ten genomic components of the previously reported isolate LV89-15 (GenBank accession Nos. KM236567 and KM378720 through KM378728), showing 91.4–98.7% coverage. RT-PCR assays were carried out to amplify a 386-bp fragment in genomic segment 4 of GCSV by using the primer pairs Ctg468F/R (Al Rwahnih et al. 2015). The amplified PCR product was cloned and sequenced. The obtained sequence (MT584880) showed 98.3% nt identity with the LV89-15 isolate (KM378723). To further confirm the infection of GCSV, the primer pairs P31a/1b (5'-AGAGAGGGGTGCACAACTG-3'/5'-CCA GCATTGTAACTCCAGCC-3') and P61a/1b (5'-GCTGCG ATAAGAGAGTTGGTG-3'/5'-CAGGAGTAGTCAACCG GTCTA-3'), designed against the assembled contigs, were used to amplify a 719-bp and a 679-bp fragment in genomic segments 3 and 6 of GCSV, respectively. The amplified PCR

products were cloned and sequenced and the two sequences (MT584879 and MT584881) showed 98.9% and 96.7% nt identity with the genomic segments of the LV89-15 isolate (KM378720 and KM378725) respectively. Furthermore, GCSV was detected by RT-PCR in another ‘Cabernet Sauvignon’ grapevine from 433 grapevine samples of 70 cultivars from 21 provinces in China, suggesting that GCSV might occur at a low frequency. To our best knowledge this is the first report of GCSV in China.

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The authors have no conflicts of interest to declare that are relevant to the content of this article. All data used during the study are available from the corresponding author by request.

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